## Supplementary Table 2. Key NBS practices in agriculture and their primary function(s)

Here, ++ and + denote more and less demonstrated secondary functions and (+) a possibility to select species that further contribute to the function.

|    | **NBS typology** | **Literature review** |
| --- | --- | --- |
| Sustainable practices | Green infrastructure | Bioremediation | Conservation | Key references \*) added after the literature search |
| Demonstrable essential primary function | Must have a productive element |  Must have a structural engineering function |  Must have a beneficial biochemical, biological or microbial function | Must have a species preservation benefit |
| Generic | Practice | 1.1 production  | 1.2 nutrients  | 1.3 microclimate | 2.1 water flows | 2.2 soil erosion | 2.3 stabilise slopes  | 3.1 pollutants  | 3.2 biota  | 3.3 carbon sequestration | 4.1 biological diversity (field) | 4.2 connectivity (landscape)  |
| Agriculture | Inter-cropping with legumes |  + | ++ |   |   |   |   |   |   |   |   |   | (Iverson et al., 2014)\* |
| Irrigated agriculture | Irrigation systems with smart water management systems | ++ |   |   | + |   |   | + |  |   |   | (+) |  |
| Agroforestry | Alley cropping with legumes and/or trees | + |  ++ |   |   | ++ | ++ |   |   | + |   |   | (McIvor et al., 2017; Wolz and DeLucia, 2018)Reference database for tree selection (ICRAF, 2021)\* |
| Silvo-pastoral systems for livestock husbandry | + |  + | + |   | + | + |   |   | + |   |   | (Chandler et al., 2018) |
| Silvo-arable systems for cultivation; intercropping | ++ |  (+) | + |   | ++ | + |   |   | ++ |   |   | (Golosov and Belyaev, 2013; Zhu et al., 2019) |
| Silviculture | Reduced impact logging  | ++ |  |   |   | + |   |   |   | + |   |   | (Hoque Mozumder et al., 2018) |
| Continuous forest cover  | ++ |   |   |   | + | + |   |  + | + |  + |   | (Angelstam and Lazdinis, 2017) |
| Native species plantations | + |  + |  + |  + |  ++ |   |  (+) |   | (+) | (+) | (+) | (Chu et al., 2019) |
| Aquaculture | Multi-trophic aquaculture | + | ++ |   |   |   |   | ++ |   |   |   |   | (d'Oultremont and Gutierrez, 2002; Li et al., 2019) |
| Agri-/Aquaculture | Faunal-aquatic systems  | ++ | + |   |   |   |   |   |   |   |  + |   | (Mohanty et al., 2009)\* |
| Horti-/Aquaculture | Silvo-aquatic systems  | ++ | + |  |   | + |   |   |   |   |   | + | (Rahman and Mahmud, 2018) |
| Soil conser-vation   | Cover crops |  (+) | + | + |   |  (+) |   |   |  |  |   |   | (Daryanto et al., 2018) |
| Contour planting  |   |   |   |   | + |   |   |   |   |   |   |  |
| Conservation tillage |   | + |   |   | + |   |   |   | + |   |   | (Singh et al., 2019) |
| Planted grass strips |  (+) | +  |   |  + | ++ |   |  +  | (+)  |   |   |   | (Are et al., 2018; Huang et al., 2019; Lenka et al., 2017; Sinore et al., 2018) |
| Planted brush structures  |  (+) |   |   |   | ++ | ++ |   |  (+) |   |   |   | (Ebabu et al., 2019) |
| Trees or shrubs planted principally for soil conservation purposes |   |   |   |   |   | ++ |   |   | + |  (+) | (+) |  |
| Hedgerows; live fences |  (+) |   |   | ++ |   |   |   |  (+) |   |   |  (+) | (Gatto et al., 2019; Holden et al., 2019) |
| Terracing made with living plants forming a key structural element |  (+) |  (+) |   |  (+) | + |   |   |   |   |   |   | (Zuazo et al., 2011) |
| Sloping agricultural land technology (SALT) | + |   |   | ++ | ++ |   |   |   |   |   |   |  |
| Geotextiles made from straw and bamboo (with contour planting) | + |  | (+) |  | + | ++ |  |  |  |  |  | (Bhattacharyya et al., 2012) |
| Fallow land with active management interventions  |   | ++ |   |   |   |   |   |   |   |   |   |  |
| Mulching;crop residue incorporation |   | ++ |   |   |   |   |   |   |   |   |   | (Are et al., 2018) |
| Nurse plants in productive plantations  |   |   | + |   |   |   |   |   |   | + |   | (Lu et al., 2018) |
| Water harvesting systems of collectors, drains, sinks and storage ponds; field trenches; planted pits | ++ |   | + | (+) | `(+) |   |   |   |   |   |   | (Mishra and Mohanty, 2004)\* |
| Soil conser-vation  | Shelterbelts as wind breaks |   |   | ++ |   |   |   | ++ |   |  + |   |  + | (Xie et al., 2018) |
| Encouraged bioturbation  |   |   |   |   |   |   | ++ |   |   |   |   | (Hoang et al., 2018) |
|  Amelioration  | Phytoremediation of soil conditions  |  (+) |  (+) |   |   | (+)  |   | ++ |   |   |   |   | (Zhang et al., 2019) |
| Phytoremediation of water quality  |   |   |   |   |   |   | ++ |  |   |   |   | (Gikas et al., 2018) |
| Buffer zones |   |   |   |   |   |   | ++ |   |   |   | + | (Aguiar Jr et al., 2015; Anbumozhi et al., 2005) |
| Denitrifying bioreactors that use woodchips or other organic processes |   |   |   |   |   |   | ++ |   |  + |   |   | (Hassanpour et al., 2019; Sarris and Burbery, 2018; Woli et al., 2010) |
| Pollutant bioremediation |   |   |   |   |   |   | ++ |   |   |   |   | (Hassanpour et al., 2019; Quintella et al., 2019; Sharma et al., 2018) |
| Vegetation filter strips / grass buffer strips |   |   |   | + | + |   | + |   |   |   |   | (Gene et al., 2019) |
| Vegetated drainage ditch |   |   |   | + | + |  | + |   |   |   |   | (Vymazal and Březinová, 2015) |
| Wetlands  | Constructed reed beds and cleaning pond systems |   |   |   |   |   |   | ++ |   |   |   |   |  |
| Constructed wetlands |  |  |  |  |  |  | ++ |  |  |  | + | (Chapman, 2012; Gikas et al., 2018; Lee et al., 2014) |
| Water treatment wetlands  |   |   |   |   |   |   | ++ |   |   |   |   |  |
| Riparian wetland management; buffer zones |  + |   |   |  (+) |   |   | + |   |   |   | + | (Anbumozhi et al., 2005; Li et al., 2019; Mander et al., 2017; Wang et al., 2018) |
| Ponds for sediment collection |   |   |   | + |   |   |   |   |   |   |   | (Mtibaa et al., 2018) |
| Vegetated swales |   |   |   | + | ++ |   |   |   |   |   |   | (Gene et al., 2019) |
| Ponds for water treatment  |  |   |   |  |   |   |  ++ |   |   |   |   | (Jia et al., 2019) |
| Wetlands for ecological diversification |   |   |   |   |   |   |  |   |   |  | ++ |  |
| Ponds for ecological diversification |   |   |   |   |   |   |   |   |   | + |   |  |
| Floodplain designated storage area |   |   |   | ++ |   |   |   |   |   |   |   |  |
| Re-connected / reconstructed floodplain  |  | + |  |  |  |  | ++ |  | + | + |  | (Schilling et al., 2017; Sgouridis et al., 2011) |
| Riparian forest |  |  |  |  |  |  |  |  | ++ | + | + | (Angelstam and Lazdinis, 2017; Turunen et al., 2019) |
| Mangrove forest planting | + |   |   | ++ |   |   |   |   | ++ |   |   | (Dat and Yoshino, 2013; Hoque Mozumder et al., 2018) |
| Biodiversity conser-vation | Protected areas |   |   |   |   |   |   |   |   | + | ++ | ++ |  |
| Remnant forest / grassland / wetland patches; ecological focus areas |   |   |   |   |   |   |   |   | + | ++ |   |  |
| Multifunctional land use with conservation provision  |  + |   |   |  ++ |  + |   |   |   | + | ++ | ++ | (Mtibaa et al., 2018) |
| Wildflower verges or other pollinator habitat | + |   |   |   |   |   |   | ++ |   | ++ |   | (Ganser et al., 2019) |
| Agro-biodiversity: use of varied provenances of seed or livestock | + |   |   |   |   |   |   |   |   | ++ |   |  |
| Beneficial predator species introduction (pest control) | ++ |   |   |   |   |   |   | ++ |   | ++ |   | (Rosas-Ramos et al., 2018)Database on crop protection (CABI, 2021)\* |

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